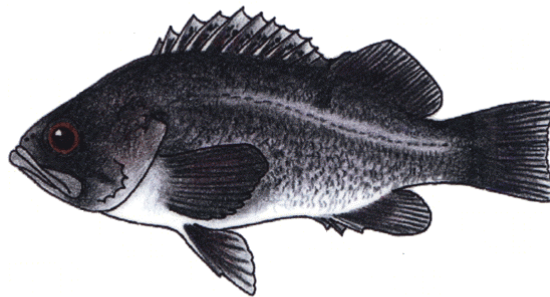


# Black Rockfish, *Sebastes melanops*

## 1993-1999 Commercial Catch by Ports & Blocks



### **Marine Fishery Profiles**

*Volume 1: Nearshore*

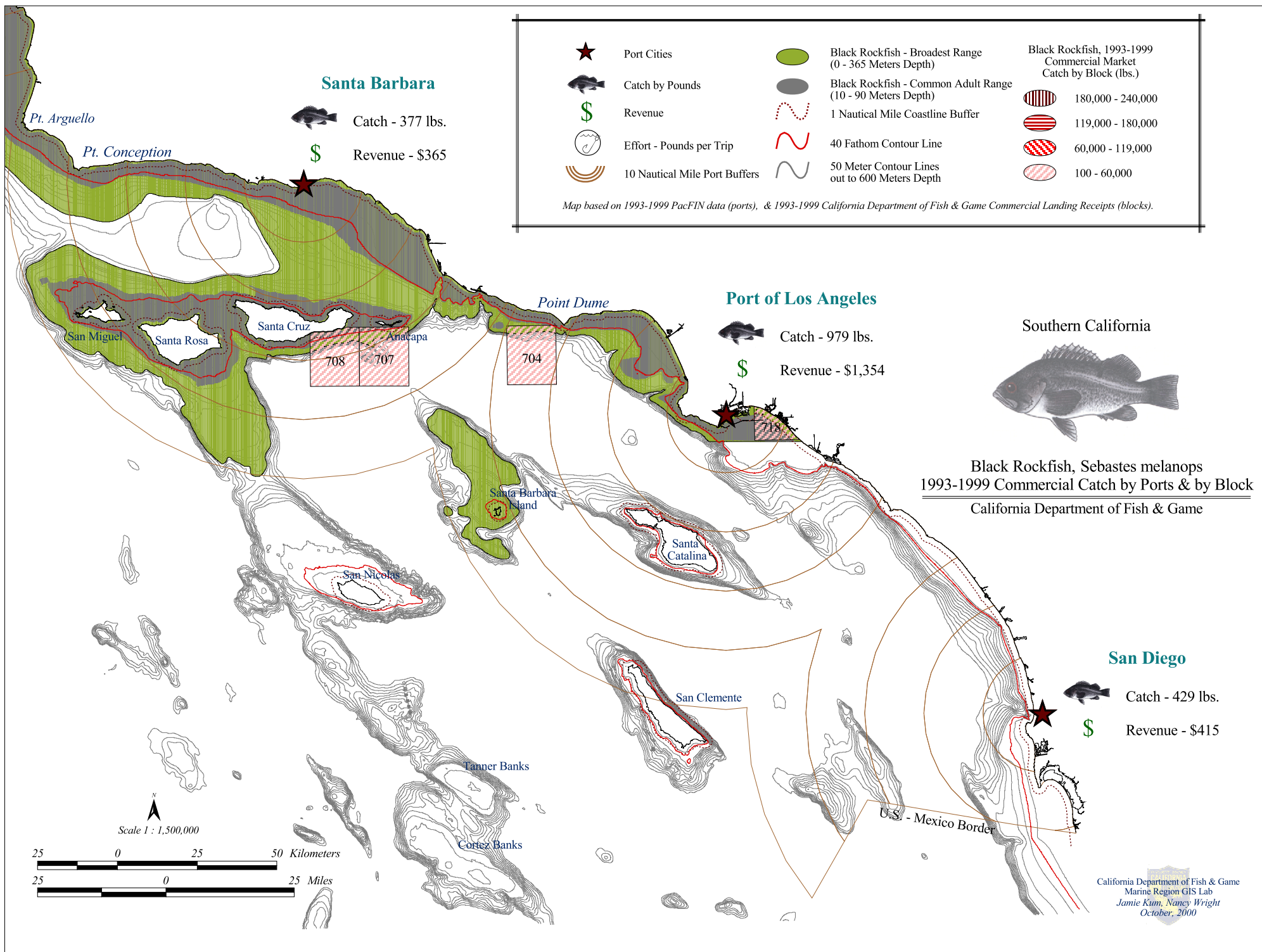
Marine Region GIS Lab

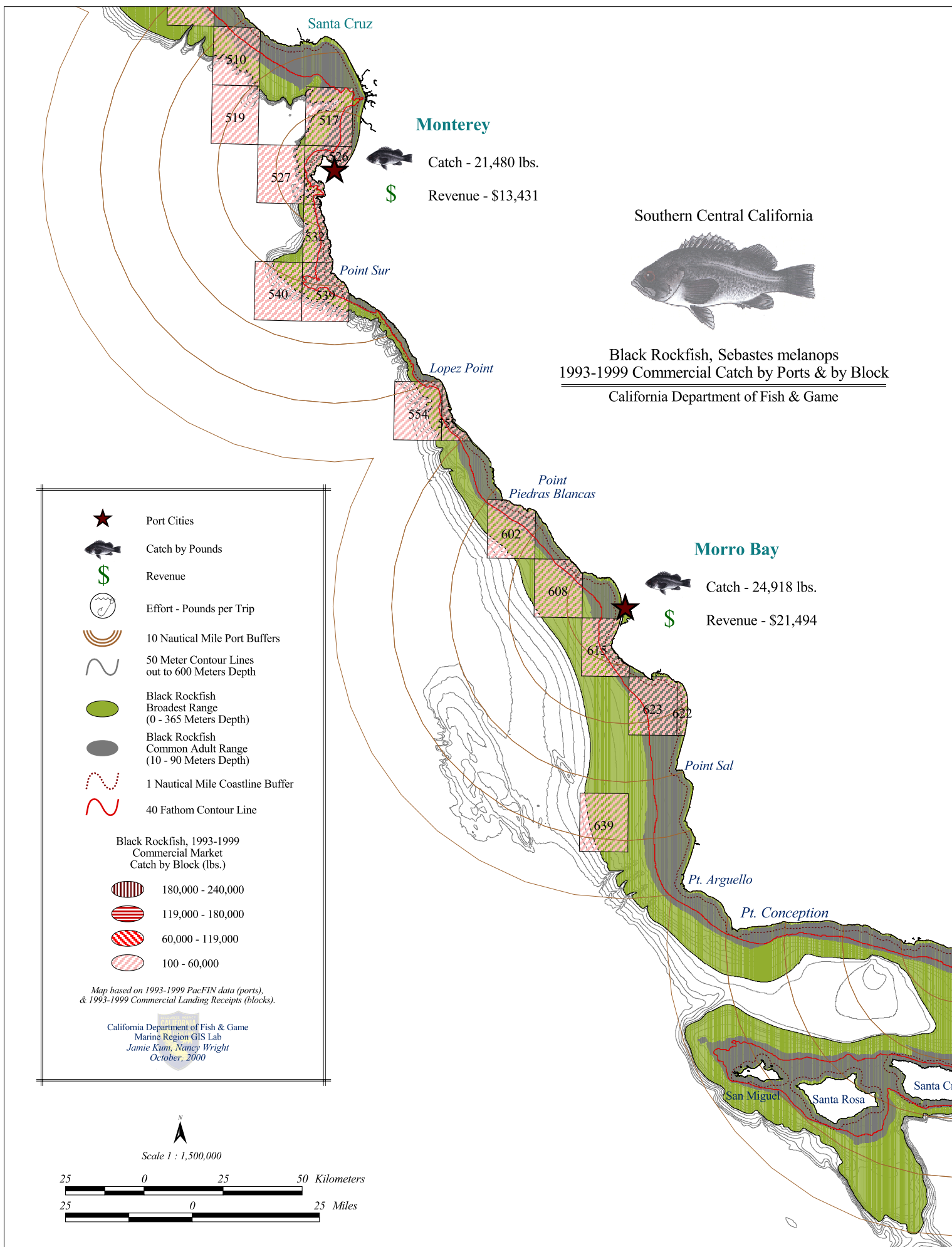
Nancy Wright	Eric Knaggs
Jamie Kum	Bob Leos
Chad King	Colleena Perez

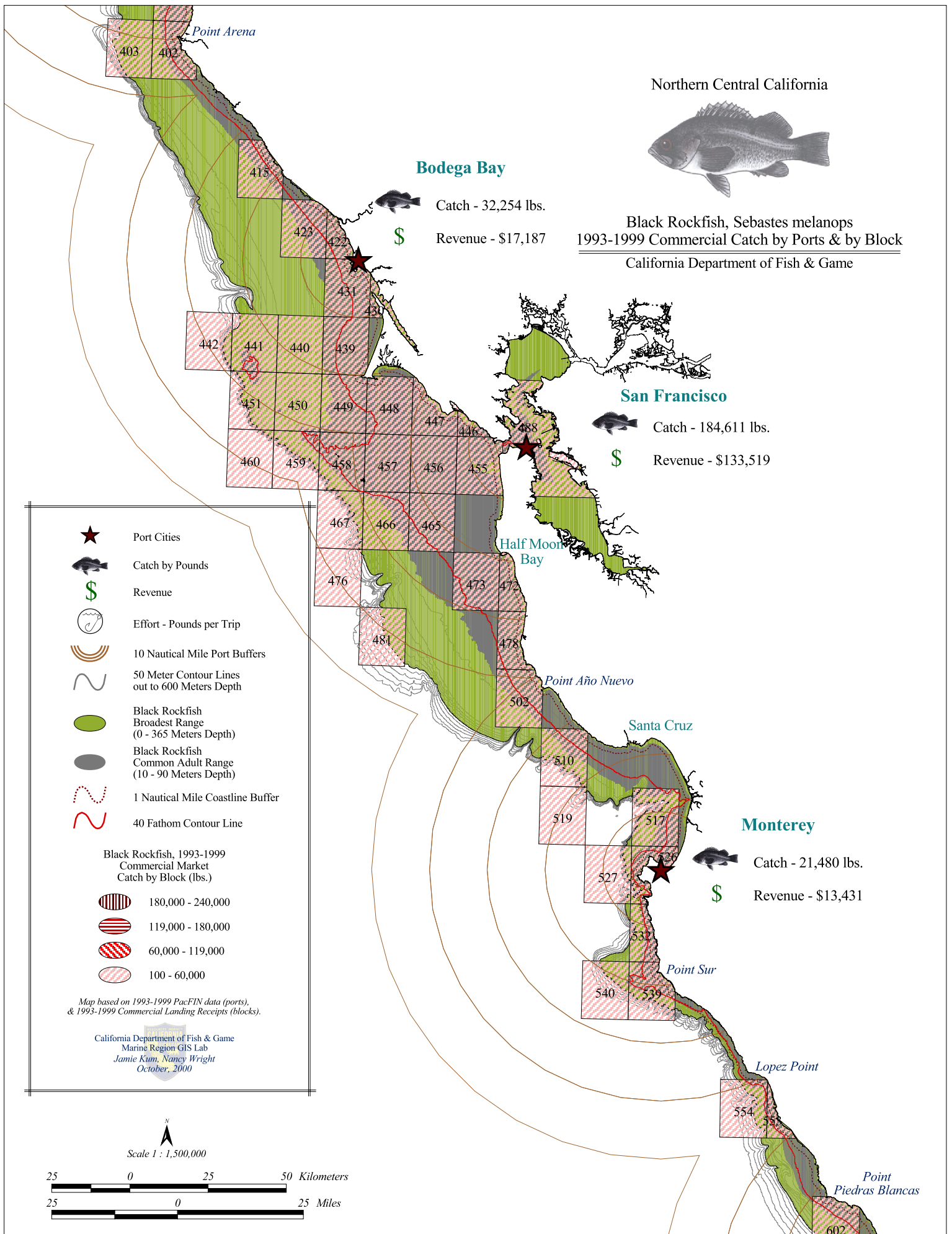


California Department of Fish & Game  
Marine Region

December 2000









# Northern California



## Black Rockfish, *Sebastes melanops* 1993-1999 Commercial Catch by Ports & by Block California Department of Fish & Game

- Port Cities
- Catch by Pounds
- Revenue
- Effort - Pounds per Trip
- 10 Nautical Mile Port Buffers
- 50 Meter Contour Lines out to 600 Meters Depth
- Black Rockfish Broadest Range (0 - 365 Meters Depth)
- Black Rockfish Common Adult Range (10 - 90 Meters Depth)
- 1 Nautical Mile Coastline Buffer
- 40 Fathom Contour Line

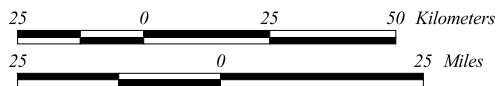
### Black Rockfish, 1993-1999 Commercial Market Catch by Block (lbs.)

- 180,000 - 240,000
- 119,000 - 180,000
- 60,000 - 119,000
- 100 - 60,000

Map based on 1993-1999 PacFIN data (ports),  
& 1993-1999 Commercial Landing Receipts (blocks).

California Department of Fish & Game  
Marine Region GIS Lab  
Jamie Kim, Nancy Wright  
October, 2000

Scale 1 : 1,500,000



## Crescent City



Catch - 1,184,018 lbs.



Revenue - \$614,493

## Eureka



Catch - 363,708 lbs.



Revenue - \$190,692

Cape Mendocino

Punta Gorda

## Fort Bragg



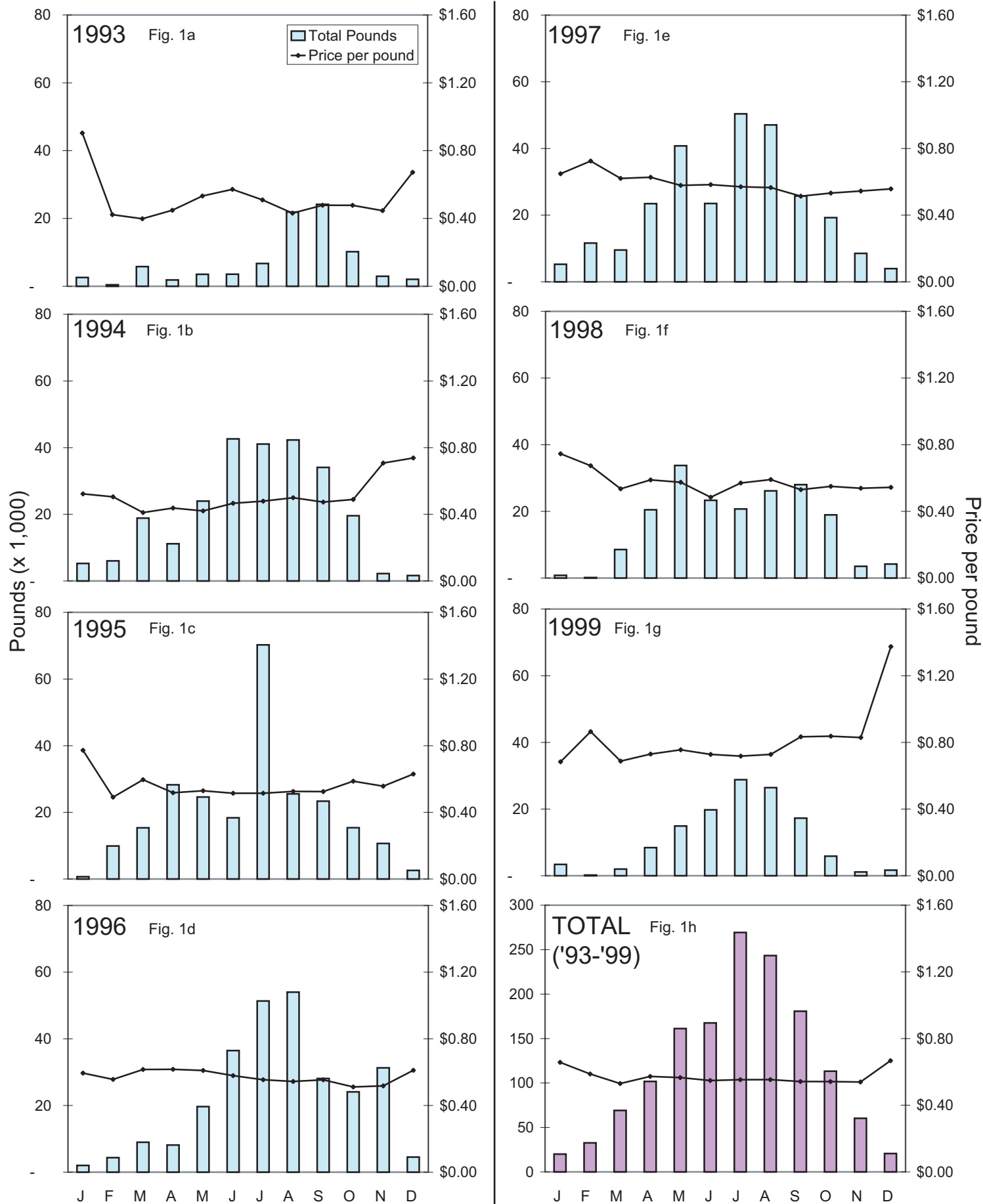
Catch - 70,732 lbs.



Revenue - \$40,510

Point Arena

**Figure 1.** (refer to table 1) CDFG Commercial Receipts Data (1993 - 1999)  
Total Pounds of Black Rockfish Caught and Average Price per Pound by Month



**Table 1.** (refer to fig. 1) CDFG Commercial Receipts Data (1993 - 1999)  
Total Pounds of Black Rockfish Caught and Average Price per Pound by Month

**1993**  
Table 1a

Month	Total Pounds	Price per Pound
Jan	2,583	\$0.90
Feb	429	\$0.42
Mar	5,810	\$0.40
Apr	1,858	\$0.45
May	3,520	\$0.53
Jun	3,552	\$0.57
Jul	6,722	\$0.51
Aug	21,888	\$0.43
Sep	24,163	\$0.48
Oct	10,190	\$0.48
Nov	2,951	\$0.45
Dec	2,046	\$0.67
<b>Total</b>	<b>85,711</b>	<b>\$0.48</b>

**1997**  
Table 1e

Month	Total Pounds	Price per Pound
Jan	5,270	\$0.65
Feb	11,628	\$0.72
Mar	9,545	\$0.62
Apr	23,458	\$0.63
May	40,783	\$0.58
Jun	23,494	\$0.58
Jul	50,393	\$0.57
Aug	47,064	\$0.57
Sep	25,732	\$0.51
Oct	19,248	\$0.53
Nov	8,520	\$0.54
Dec	3,964	\$0.56
<b>Total</b>	<b>269,098</b>	<b>\$0.58</b>

**1994**  
Table 1b

Month	Total Pounds	Price per Pound
Jan	5,251	\$0.52
Feb	6,032	\$0.50
Mar	18,863	\$0.41
Apr	11,165	\$0.44
May	23,971	\$0.42
Jun	42,627	\$0.47
Jul	41,062	\$0.48
Aug	42,289	\$0.50
Sep	34,073	\$0.47
Oct	19,562	\$0.49
Nov	2,201	\$0.71
Dec	1,618	\$0.74
<b>Total</b>	<b>248,713</b>	<b>\$0.47</b>

**1998**  
Table 1f

Month	Total Pounds	Price per Pound
Jan	818	\$0.75
Feb	158	\$0.67
Mar	8,556	\$0.54
Apr	20,469	\$0.59
May	33,771	\$0.57
Jun	23,312	\$0.48
Jul	20,707	\$0.57
Aug	26,160	\$0.59
Sep	28,015	\$0.53
Oct	18,939	\$0.55
Nov	3,523	\$0.54
Dec	4,214	\$0.54
<b>Total</b>	<b>188,642</b>	<b>\$0.56</b>

**1995**  
Table 1c

Month	Total Pounds	Price per Pound
Jan	695	\$0.77
Feb	9,897	\$0.49
Mar	15,369	\$0.60
Apr	28,273	\$0.52
May	24,596	\$0.53
Jun	18,348	\$0.51
Jul	70,251	\$0.51
Aug	25,529	\$0.53
Sep	23,343	\$0.52
Oct	15,393	\$0.59
Nov	10,661	\$0.56
Dec	2,572	\$0.63
<b>Total</b>	<b>244,928</b>	<b>\$0.53</b>

**1999**  
Table 1g

Month	Total Pounds	Price per Pound
Jan	3,384	\$0.68
Feb	184	\$0.86
Mar	1,999	\$0.69
Apr	8,432	\$0.73
May	14,909	\$0.76
Jun	19,754	\$0.73
Jul	28,805	\$0.72
Aug	26,430	\$0.73
Sep	17,272	\$0.83
Oct	5,862	\$0.84
Nov	1,138	\$0.83
Dec	1,661	\$1.37
<b>Total</b>	<b>129,829</b>	<b>\$0.76</b>

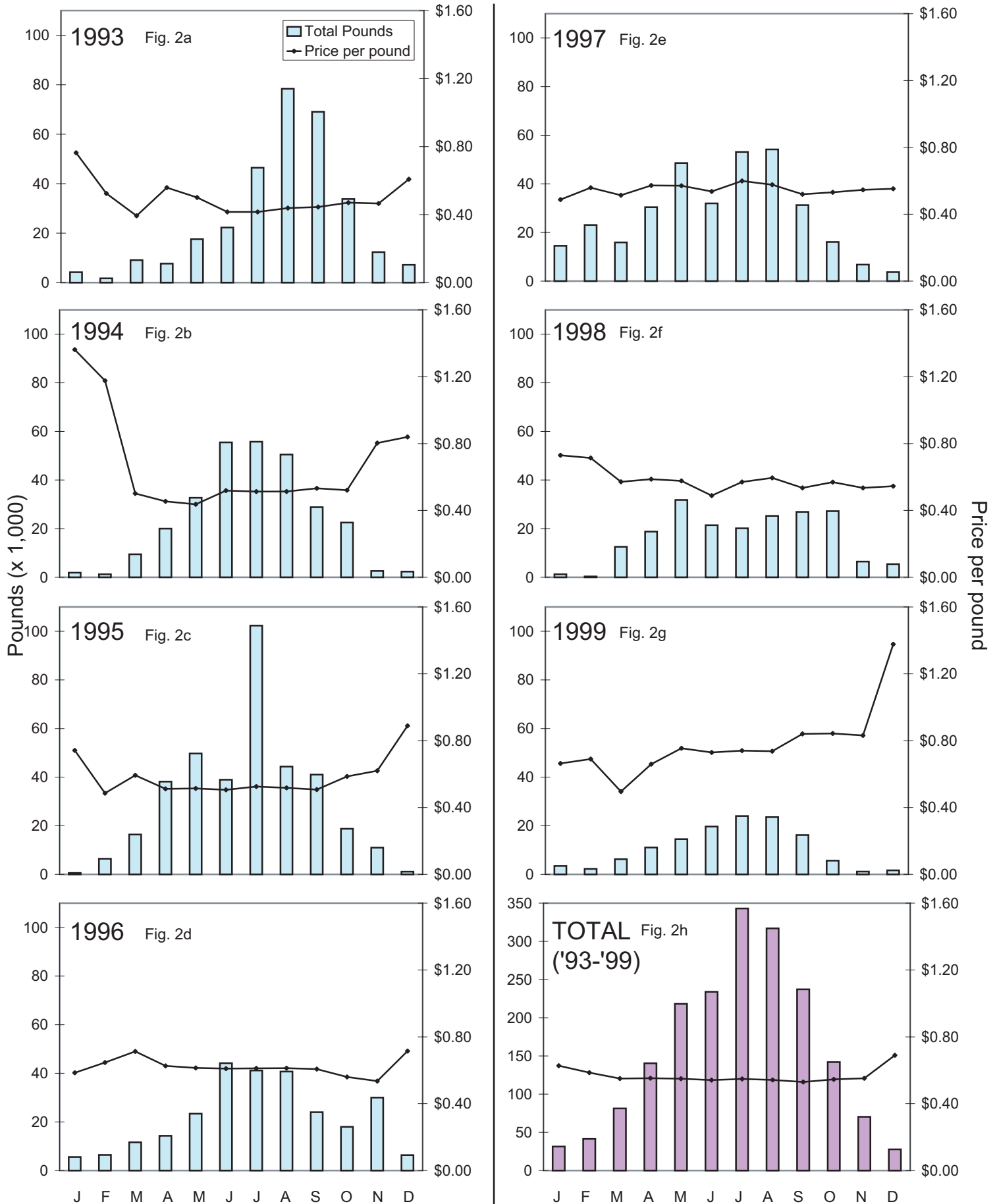
**1996**  
Table 1d

Month	Total Pounds	Price per Pound
Jan	2,021	\$0.59
Feb	4,338	\$0.56
Mar	8,961	\$0.62
Apr	8,129	\$0.62
May	19,669	\$0.61
Jun	36,477	\$0.58
Jul	51,333	\$0.55
Aug	53,988	\$0.54
Sep	28,102	\$0.55
Oct	24,096	\$0.51
Nov	31,286	\$0.52
Dec	4,530	\$0.61
<b>Total</b>	<b>272,928</b>	<b>\$0.56</b>

**TOTAL**  
'93 - '99  
Table 1h

Month	Total Pounds	Price per Pound
Jan	20,022	\$0.66
Feb	32,665	\$0.59
Mar	69,101	\$0.53
Apr	101,783	\$0.57
May	161,218	\$0.57
Jun	167,564	\$0.55
Jul	269,272	\$0.55
Aug	243,349	\$0.55
Sep	180,699	\$0.54
Oct	113,289	\$0.54
Nov	60,280	\$0.54
Dec	20,605	\$0.67
<b>Total</b>	<b>1,439,848</b>	<b>\$0.56</b>

**Figure 2.** (refer to table 2) Pacific Fisheries Information Network Data (1993 - 1999)  
Total Pounds of Black Rockfish Caught and Average Price per Pound by Month





**Table 2.** (refer to fig. 2) Pacific Coast Fisheries Information Network Data (1993 - 1999)  
Total Pounds of Black Rockfish Caught and Average Price per Pound by Month

1993

Table 2a

Month	Total Pounds	Price per Pound
Jan	4,170	\$0.76
Feb	1,742	\$0.52
Mar	9,079	\$0.39
Apr	7,669	\$0.56
May	17,551	\$0.50
Jun	22,262	\$0.42
Jul	46,450	\$0.42
Aug	78,373	\$0.44
Sep	69,034	\$0.44
Oct	33,773	\$0.47
Nov	12,335	\$0.47
Dec	7,219	\$0.61
<b>Total</b>	<b>309,657</b>	<b>\$0.45</b>

1997

Table 2e

Month	Total Pounds	Price per Pound
Jan	14,527	\$0.49
Feb	23,065	\$0.56
Mar	15,928	\$0.51
Apr	30,428	\$0.57
May	48,559	\$0.57
Jun	31,962	\$0.54
Jul	53,132	\$0.60
Aug	54,187	\$0.58
Sep	31,250	\$0.52
Oct	16,122	\$0.53
Nov	6,794	\$0.55
Dec	3,698	\$0.55
<b>Total</b>	<b>329,652</b>	<b>\$0.56</b>

1994

Table 2b

Month	Total Pounds	Price per Pound
Jan	1,882	\$1.36
Feb	1,203	\$1.18
Mar	9,455	\$0.50
Apr	20,015	\$0.45
May	32,728	\$0.44
Jun	55,506	\$0.52
Jul	55,770	\$0.51
Aug	50,503	\$0.51
Sep	28,827	\$0.53
Oct	22,507	\$0.52
Nov	2,598	\$0.80
Dec	2,316	\$0.84
<b>Total</b>	<b>283,310</b>	<b>\$0.52</b>

1998

Table 2f

Month	Total Pounds	Price per Pound
Jan	1,225	\$0.73
Feb	325	\$0.71
Mar	12,549	\$0.57
Apr	18,789	\$0.59
May	31,795	\$0.58
Jun	21,438	\$0.49
Jul	20,152	\$0.57
Aug	25,235	\$0.59
Sep	26,913	\$0.53
Oct	27,212	\$0.57
Nov	6,470	\$0.53
Dec	5,402	\$0.55
<b>Total</b>	<b>197,505</b>	<b>\$0.56</b>

1995

Table 2c

Month	Total Pounds	Price per Pound
Jan	558	\$0.74
Feb	6,418	\$0.49
Mar	16,403	\$0.59
Apr	38,157	\$0.51
May	49,725	\$0.51
Jun	38,925	\$0.51
Jul	102,335	\$0.53
Aug	44,349	\$0.52
Sep	41,025	\$0.51
Oct	18,743	\$0.59
Nov	10,976	\$0.62
Dec	1,131	\$0.89
<b>Total</b>	<b>368,745</b>	<b>\$0.53</b>

1999

Table 2g

Month	Total Pounds	Price per Pound
Jan	3,483	\$0.66
Feb	2,229	\$0.69
Mar	6,236	\$0.50
Apr	11,036	\$0.66
May	14,497	\$0.75
Jun	19,662	\$0.73
Jul	23,978	\$0.74
Aug	23,560	\$0.74
Sep	16,184	\$0.84
Oct	5,627	\$0.84
Nov	1,142	\$0.83
Dec	1,662	\$1.38
<b>Total</b>	<b>129,296</b>	<b>\$0.74</b>

1996

Table 2d

Month	Total Pounds	Price per Pound
Jan	5,565	\$0.58
Feb	6,423	\$0.65
Mar	11,618	\$0.71
Apr	14,294	\$0.63
May	23,370	\$0.61
Jun	44,185	\$0.61
Jul	41,150	\$0.61
Aug	40,734	\$0.61
Sep	24,004	\$0.61
Oct	17,995	\$0.56
Nov	29,995	\$0.54
Dec	6,339	\$0.71
<b>Total</b>	<b>265,672</b>	<b>\$0.61</b>

**TOTAL**  
**'93 - '99**

Table 2h

Month	Total Pounds	Price per Pound
Jan	31,410	\$0.63
Feb	41,405	\$0.59
Mar	81,268	\$0.55
Apr	140,388	\$0.55
May	218,225	\$0.55
Jun	233,940	\$0.54
Jul	342,967	\$0.55
Aug	316,941	\$0.54
Sep	237,237	\$0.53
Oct	141,979	\$0.55
Nov	70,310	\$0.55
Dec	27,767	\$0.69
<b>Total</b>	<b>1,883,837</b>	<b>\$0.55</b>

## **Abbreviated Life History of Black Rockfish (*Sebastes melanops*)**

Black rockfish are a minor to moderate component of nearshore commercial and recreational fisheries, with increasing importance from the San Francisco area northward.

### ***Distribution, Stock Structure and Migration***

Black rockfish range from Amchitka Island, Alaska to Santa Monica Bay in southern California, but are uncommon south of Santa Cruz. They frequently occur in loose schools ten to twenty feet above shallow (to 120ft) rocky reefs, but individuals may also be observed resting on rocky bottoms, or schooling midwater over deeper (to 240ft) reefs to 1200ft.

Records for black rockfish show or describe a range of movement/migratory patterns from residential (no movement) to transient (movement to 345 mi.).

### ***Age and Growth***

This species may attain a maximum length of 25.5 in. in California, although individuals over 20 in. are rarely observed today. Average size observed in commercial and recreational fisheries now is 14 to 15 in. in northern California and 11 to 13 in. in central California.

Black rockfish have a relatively fast growth rate. First-year growth is usually 3.5 to 4.0 inches. Most individuals become available to the fishery by the time they have reached 3 to 4 years of age and are approximately 10 to 11.5 inches.

### ***Reproduction, Fecundity and Seasonality***

In California, age at first maturity for males is 3 yr, or 9.8 in. TL. For females, age at first maturity is 5 yr or, 11.8 inches. At 6 yr, or about 14 in., half of all males are sexually mature. At 6 to 7 yr, or about 16 in., half of all females are sexually mature.

As with all members of the genus *Sebastes*, fertilization and development of embryos is internal. Black rockfish mating generally occurs between September and November.

Females store the sperm internally until their eggs mature in December or January, at which time the eggs are fertilized. The larvae develop within thirty days, at which time the black eyespots become visible to the naked eye. The eyed larvae are spawned from late January to May, peaking in February off California.

Larvae are planktonic for three to six months where they are dispersed by currents, advection, and upwelling. They begin to reappear as young-of-the-year (YOY) fish in shallow, nearshore waters by May, but the major recruitment event usually occurs from July to August.

***Natural Mortality***

Mortality estimates have been calculated for black rockfish along the Pacific coast. The instantaneous rate of natural mortality (M) has been found to vary between 0.2 and 0.4 for unsexed fish along the Pacific coast.

***Diseases***

No information is available on diseases in black rockfish.

***Predator/Prey Relationships***

As larvae, black rockfish feed on nauplii, invertebrate eggs and copepods. As adults, they remain primarily planktivorous, feeding on small fishes (including juvenile blue and other rockfishes) as well as crustaceans, polychaetes, cephalopods, chaetognaths and jellyfish.

***Competition***

Black rockfish co-occur with blue and olive rockfishes in the water column and with black-and-yellow rockfish near and on the bottom.

Black rockfish are commonly associated with other nearshore fish species, particularly other rockfishes. No other schooling rockfish was closely associated statistically with black rockfish, but three benthic species, gopher, China, and brown rockfishes, showed an affinity to the same habitat and depth range as black rockfish. It is commonly known among fisherman that localized areas of relatively high abundance in the nearshore area characterize black rockfish distribution in central California.

***Critical Habitat***

Larval black rockfish are pelagic. Young-of-the-year (approximately 1.5 in.) settle nearshore, generally in the shallower portions of the kelp beds (15 to 40 ft) where they frequent the sand-rock interface, seagrass beds, kelp canopy, midwater column and high-relief rock. They have also been found on artificial reefs, and in bays, estuaries and tide pools.

Adults inhabit the midwater and pelagic areas over high-relief rocky reefs. They are found in and around kelp beds, boulder fields and artificial reefs.

***Status of Stocks***

In California, no fishery-independent population estimates have been made of black rockfish stocks. Marine Recreational Fisheries Statistical Survey (MRFSS) showed that in Humboldt and Del Norte Counties (northern California), black rockfish comprised from 15 to 31 percent annually of the estimated total marine recreational catch for all fishing modes combined. South of the Eureka area, black rockfish gradually decrease in importance in the recreational catch and are infrequently observed south of Santa Cruz.